

FIBER OPTIC LASER TRANSMITTER WITH
REDUCED NEAR END REFLECTIONS

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ABSTRACT OF THE DISCLOSURE

10 A laser apparatus, which generates laser light to be transmitted through an optical
transmission system includes a laser that emits light that is substantially linearly polarized, a
housing in which the laser is mounted, and a quarter wave retarder plate. The quarter wave
retarder plate is disposed so that the emitted laser light passes through the quarter wave
retarder plate prior to transmission of the emitted laser light through the optical transmission
system. The quarter wave retarder plate causing the emitted laser light to become circularly
15 polarized with a predefined handedness. The quarter wave retarder plate is also disposed so
that light reflected by the optical transmission system back toward the laser passes through
the quarter wave retarder plate a second time prior to reaching the laser, causing the reflected
light to become linearly polarized with a linear polarization that is orthogonal to the
polarization state of the light emitted by the laser. In one embodiment, a linear polarizer is
20 positioned adjacent a front face of the quarter wave retarder plate. The linear polarizer
imposes a particular linear polarization orientation on the emitted laser light, and blocks the
reflected light that passes through the quarter wave retarder plate because that light has a
linear polarization that is orthogonal to the polarization axis of the linear polarizer.